



IntelliDriveSM

Vehicle to Infrastructure Connectivity Research Roadmap

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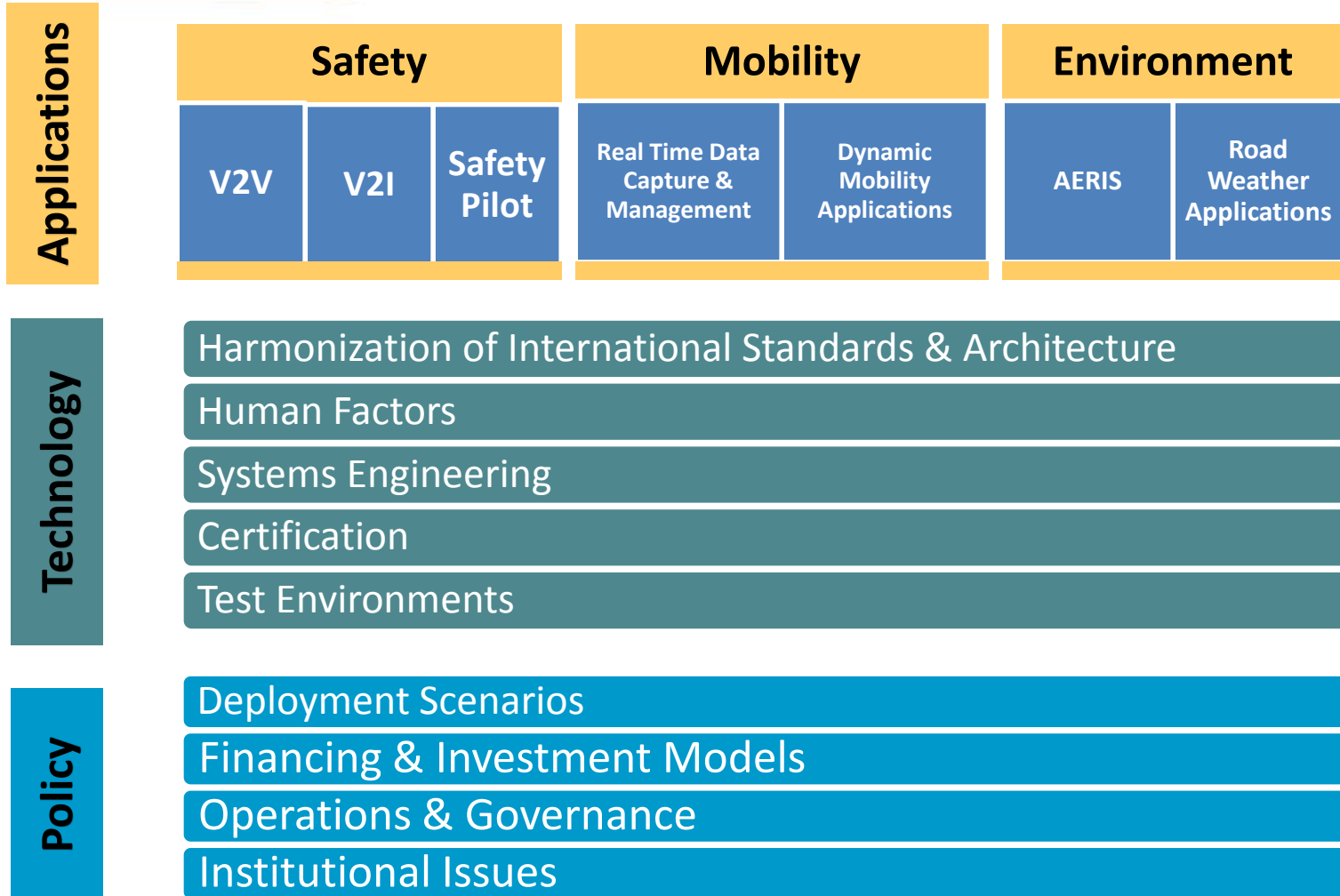
FHWA Office of Operations R&D

U.S. Department of Transportation

TRB-ITS Mid-Year Meeting on IntelliDrive

Irvine, CA

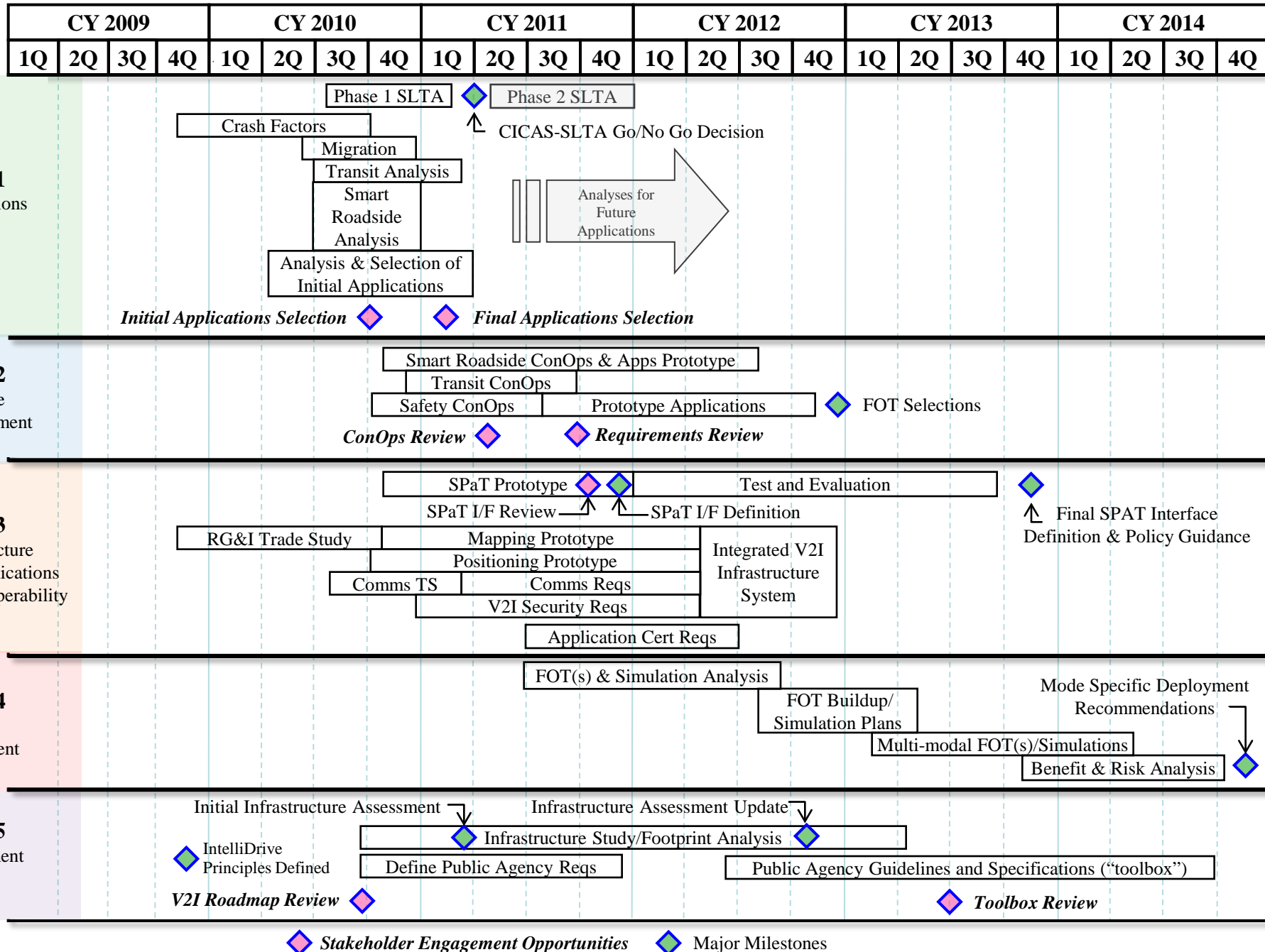
September 21-22, 2010



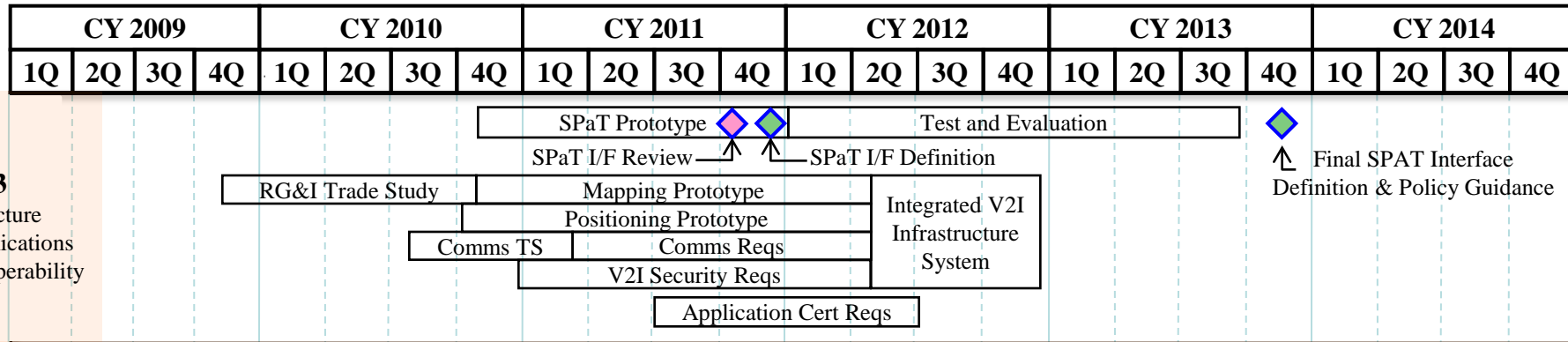
V2I for Safety Research Plan

- Track 1 – Applications Analysis
 - Selection of Safety Applications (January 2011).
- Track 2 – Prototype Development
 - Develop concept of operations, application requirements, and design, build and test applications.
- Track 3 – Infrastructure Communications/Interoperability
 - Test and evaluate SPaT, ***issue SPaT Policy Guidance (2Q 2013)****.
 - Test and evaluate Mapping and Positioning solutions.
 - Test and Evaluate Communication Requirements.
- Track 4 – Benefits Assessment
 - Perform FOTs based on selected safety applications.
 - Analyze data for measuring safety benefits.
- Track 5 – Deployment Planning (ongoing)
 - Development of Public Agency Guidelines and a Toolbox for practitioners.

V2I for Safety Roadmap - Draft



V2I for Safety Roadmap – Draft



Track 3
Infrastructure
Communications
& Interoperability

TRACK 3 – Infrastructure Communications & Interoperability (led by FHWA R&D)

Key objective: Provide the critical technology underpinnings that allow V2I safety, mobility and environmental applications be deployed nationally.

Major outputs: Integrated V2I Infrastructure System required to exchange useful data and information.

Major Work Activities:

- Definition of SPaT Interface and Policy Guidance
- Mapping, Positioning and Communications Requirements
- Integrated V2I Infrastructure System (Reference Implementation)

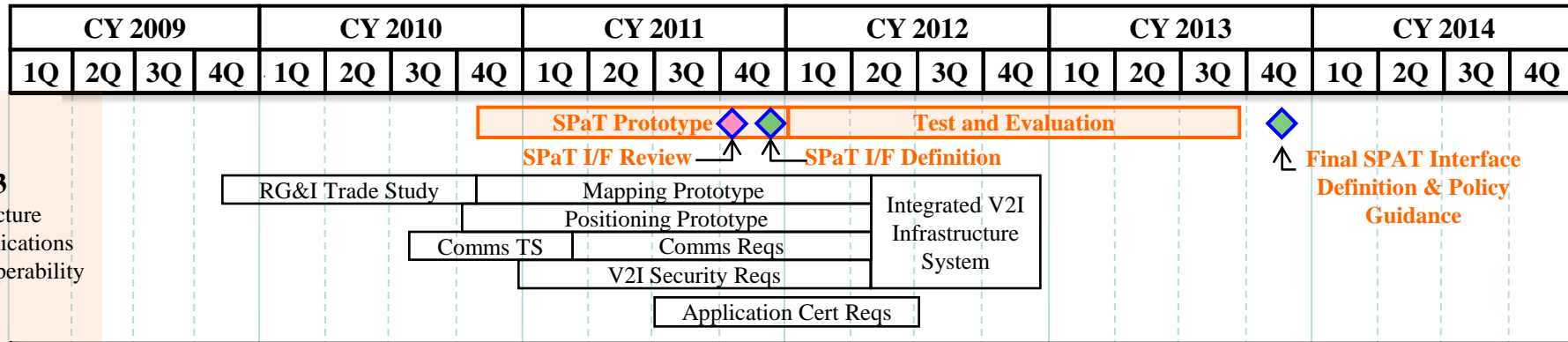
Related IntelliDrive Research Efforts

- Policy
 - Data ownership, privacy, liability issues
- Real-Time Data Capture and Management
 - Researches ways to capture, process and handle V2I data for non-safety applications
- Dynamic Mobility Applications
 - Develops and tests mobility applications that utilize V2I communications
- AERIS
 - Develops and tests environmental applications that utilize V2I communications

Back-Up Slides



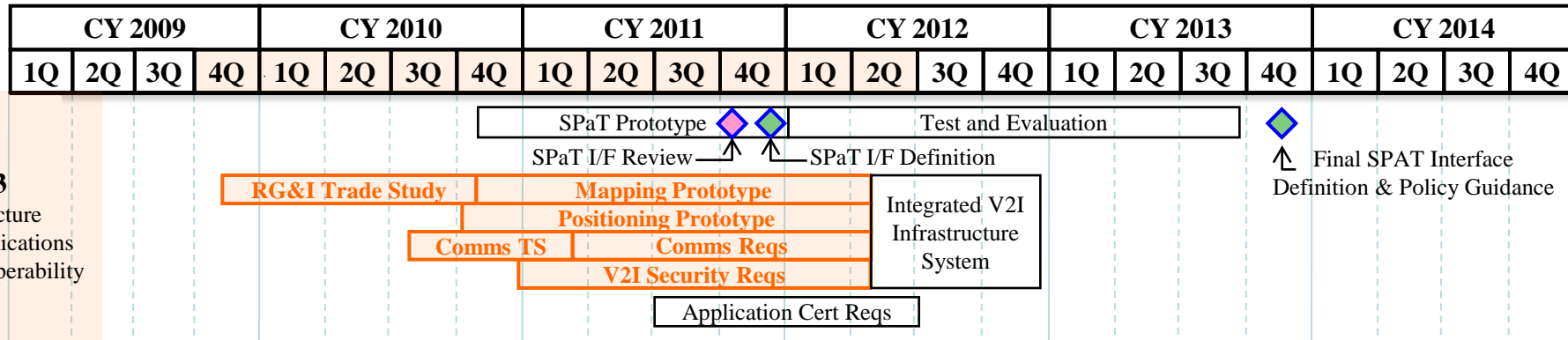
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Definition of SPaT Interface and Policy Guidance:

- Develop SPaT Prototype
 - ◆ Stakeholder Engagement Opportunity – Review initial concept for SPaT Interface
 - ◆ Initial definition of SPaT Interface
- Test and Evaluation of SPaT Prototype
 - ◆ Final SPaT Interface Definition & Policy Guidance

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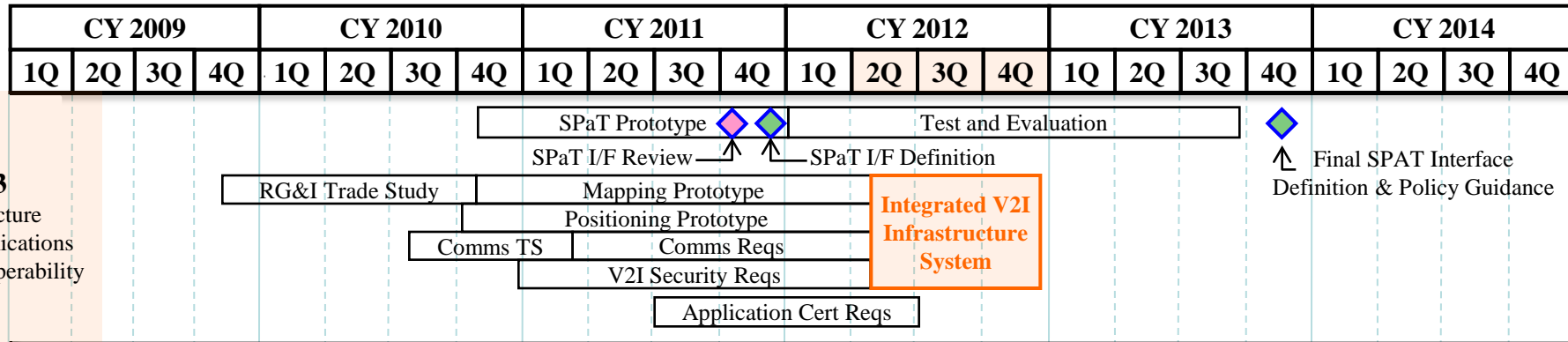


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Infrastructure Systems Interoperability and Communications:

- Roadway Geometry and Inventory (RG&I) Trade Study.
- Geometric Roadway Map (Mapping) Prototype.
- Positioning Prototype.
- Communications Trade Study.
- Communications Requirements.
- V2I Security Requirements.

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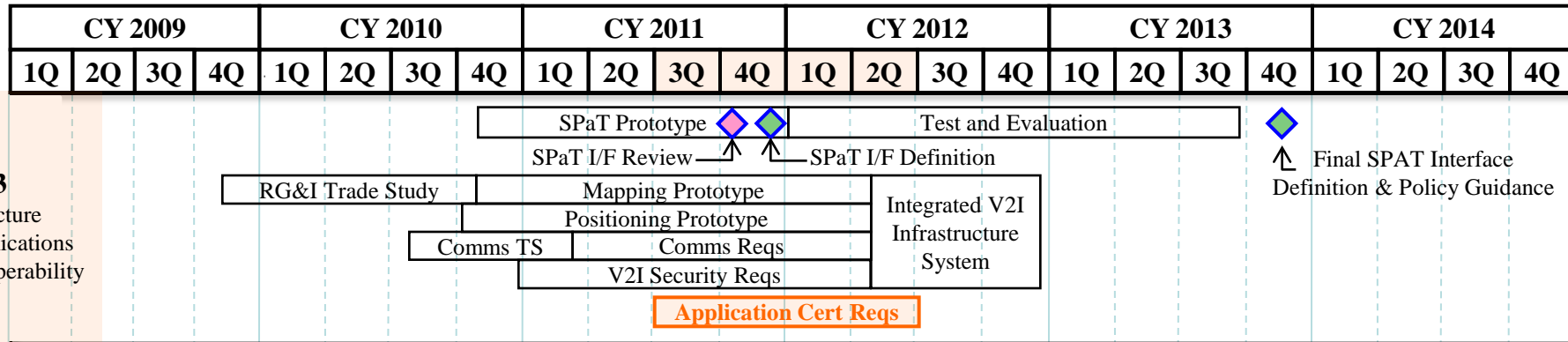


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Integrated V2I Infrastructure System (Reference Implementation):

- Integration of system requirements.
 - Consolidate outputs from SPaT, positioning, mapping, communications and security.
 - Produce format to enable applications.
 - Serve as “reference implementation.”

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Applications Certification Requirements:

- Ensure applications meet requirements of IntelliDriveSM Program.
- A systems approach to certification of applications.
- This is NOT an equipment certification process.